Electronic Supplementary Information

Calcium-released elastic hydrogel scaffolds for in situ bone regeneration

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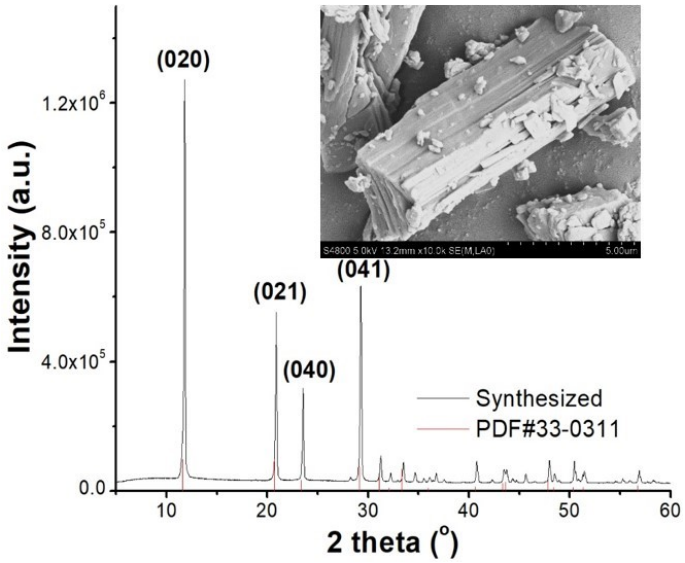

Fig. S1. XRD and SEM image of the as-prepared $CaSO_4 \cdot 2H_2O$ powders.

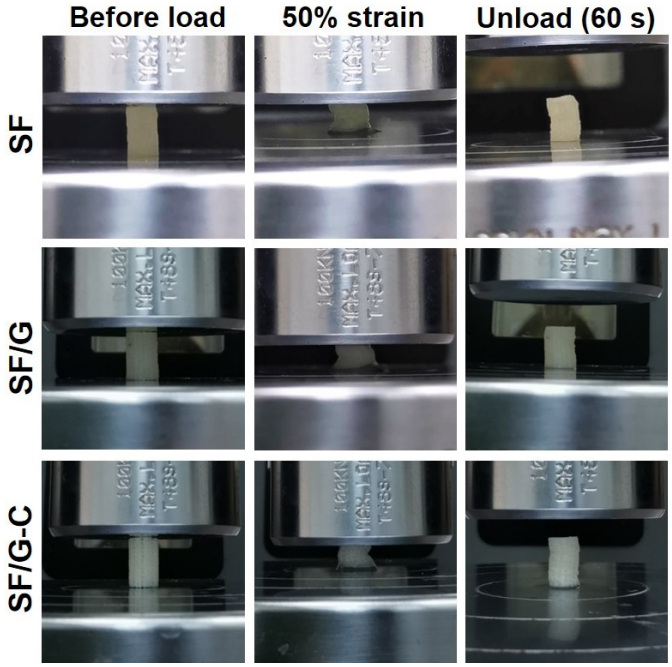

Fig. S2. The hydrogel scaffolds suffered from axial compression for 50% strain, and then decompression.

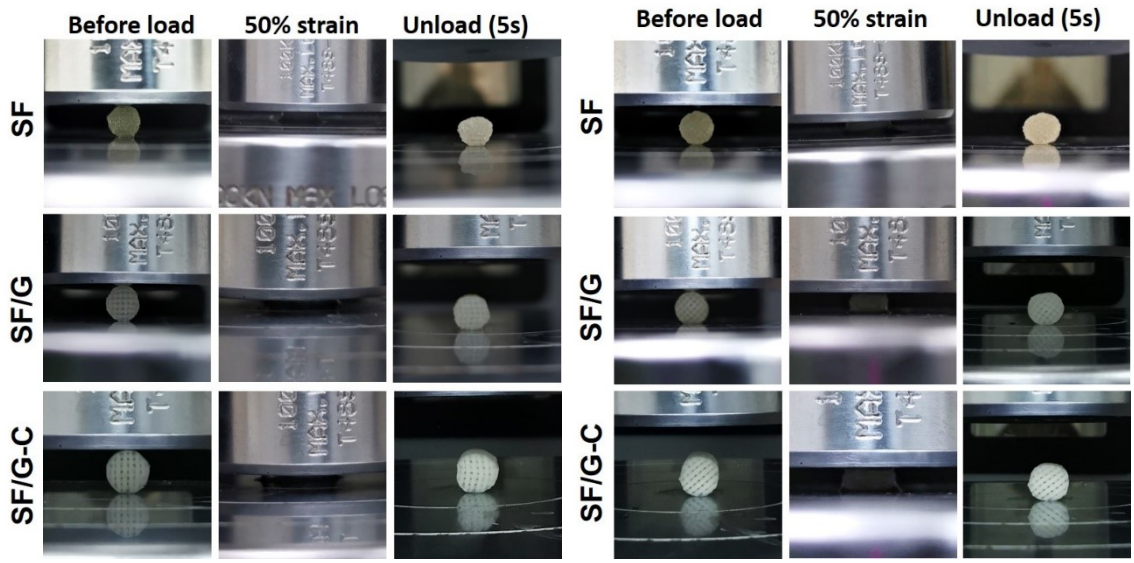

Fig. S3. The hydrogel scaffolds suffered from cylindrical surface 45º and 90º angle compression and then decompression.

Table S1. The primers used for qPCR analyses

Name		primers
BMP-2	Forward	5’-GAAGCCAGGTGTCTCCAAGAG-3’
	Reverse	5’-GTGGATGTCCTTTACCGTCGT-3’
OCN	Forward	5’-TGACAAAGCCTTCATGTCCAA-3’
	Reverse	5’-CTCCAAGTCCATTGTTGAGGTAG-3’
OPN	Forward	5’-CCAAGCGTGGAAACACACAGCC-3’
	Reverse	5’-GGCTTTGGAACTCGCCTGACTG-3’
Runx-2	Forward	5’-CCCAACTTCCTGTGCTCCGT-3’
	Reverse	5’-AGTGAAACTCTTGCCTCGTCC-3’
VEGF	Forward	5’-CAATGATGAAGCCCTGGAGTG-3’
	Reverse	5’-GCTCATCTCTCCTATGTGCTGG-3’
Col I	Forward	5’-GGAGAGAGCATGACCGATGG-3’
	Reverse	5’-GGGACTTCTTGAGGTTGCCA-3’
GAPDH	Forward	5’- GACATGCCGCCTGGAGAAAC-3’
	Reverse	5’- AGCCCAGGATGCCCTTTAGT-3’

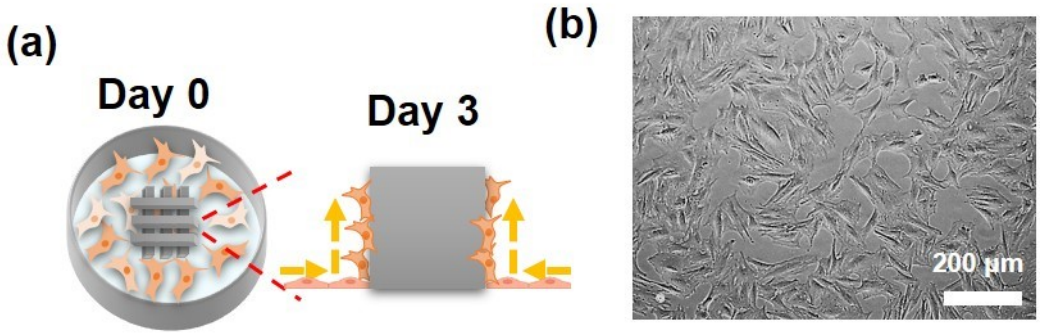

Fig. S4. The hydrogel scaffolds mediated the migration of MSCs: (a) the illustration of the migration of MSCs into the scaffolds; (b) the MSCs used to observe their migration into the scaffolds.

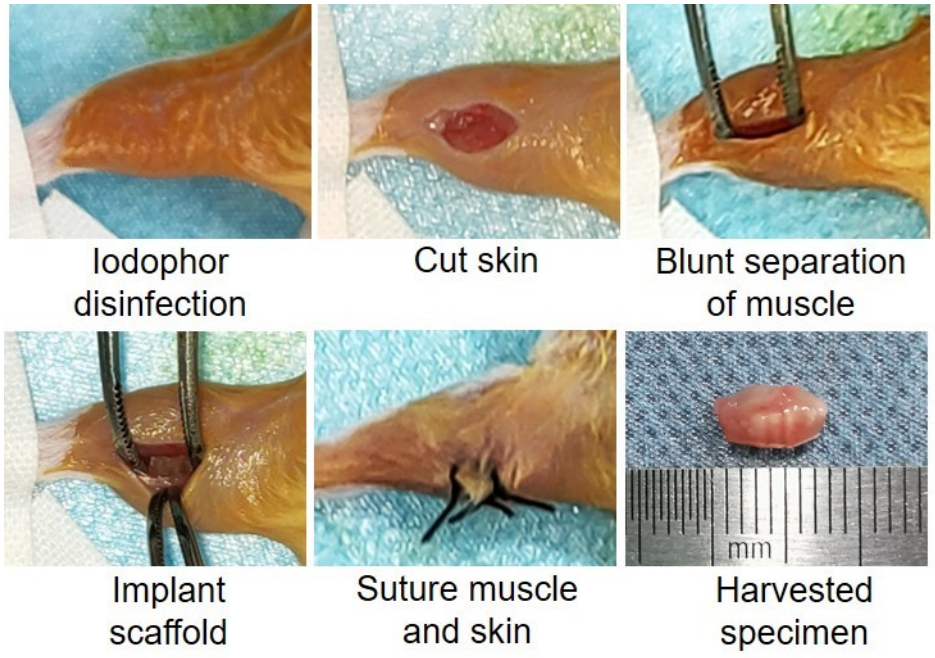

Fig. S5. The surgical procedure of implanting the hydrogel scaffolds into the muscles of mice.

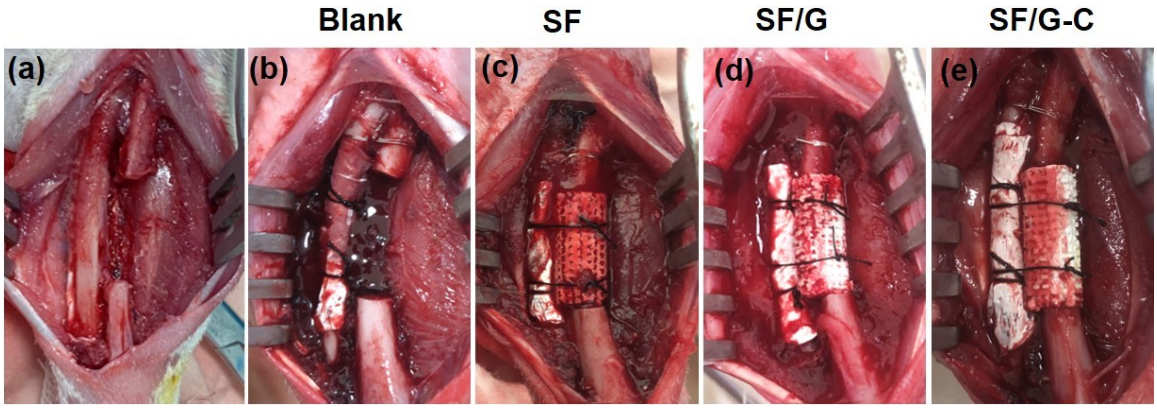

Fig. S6. The surgery created a critical size of ulnar defect in the rabbit ulna and then the hydrogel scaffold was implanted. (a) The ulnar defect with periosteum completely removed from cut bony edges as well as from the adjacent radial surface. (b) The e-PTFE membrane wrapped and bound around the radius in the defect area. To avoid the exfoliation of e-PTFE membrane, the wrapped e-PTFE membraned was further bound using the suture thread. (c-e) Three hydrogel scaffolds (SF, SF/G, and SF/G-C) were gently compressed into the defects.

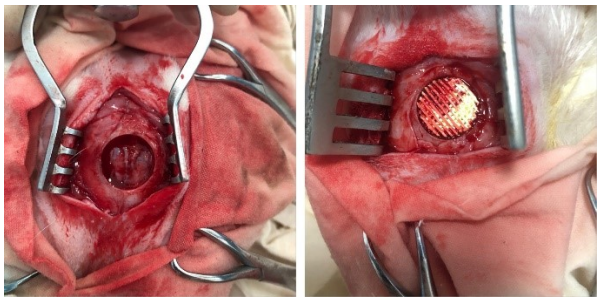

Fig. S7. The surgery created a critical size of cranial defect (12.5 mm) in the rabbit skull and then the corresponding size of the hydrogel scaffold was implanted.